










# Postpartum Galactocele in Augmented Breast after Using Breast Pump Mimicking Breast Implant-Associated Anaplastic Large Cell Lymphoma: A Case Report

유방확대술 받은 수유 중인 여성에서 유축기를 사용한 뒤 발생한 유방 보형물 관련 역형성 거대 세포 림프종 모방 산후 젖낭종: 증례 보고

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Post-partum galactocele is a common benign disease among breastfeeding women, whereas retromammary and peri-implant galactocele are relatively rare conditions. Herein, a 34-year-old, 1 month-postpartum female, who had augmentation mammoplasty and a 1-month history of breast pump use, presented with left breast enlargement for 2 weeks. An initial left breast US revealed hyperechoic peri-implant fluid collection. Additional US-guided fine needle aspiration was done using a 21G-needle, draining the milk component in the process, and cytologic results revealed numerous crystals, suggestive of galactocele. Various diseases, especially breast implant-associated anaplastic large cell lymphoma, can cause peri-implant fluid collection in an augmented breast. Thus, correlating imaging features with clinical information and cytologic analysis plays an important role in appropriate management.

**Index terms** Breast; Galactocele; Lymphoma; Postpartum

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## INTRODUCTION

Breast augmentation surgery is the most common cosmetic surgical procedure, consist of 15.8% of all cosmetic procedures (1). And the number of procedure is consistently increasing in Asian countries including South Korea. The major age group of breast augmentation is reported between 35 and 40 years. Pregnancy and lactation-associated changes frequently occur within augmented breasts (1). Several studies reported the complications and its imaging features associated with implants (2-4). And recently, 779 cases of breast implant-associated anaplastic large cell lymphoma (BIA-ALCL) has been reported worldwide. Common imaging feature of BIA-ALCL is peri-implant effusion over 1 year after implant insertion (3). Although most of lesions in lactating or augmented breast are reported as benign diseases, malignancy associated with pregnancy or implant should be considered (3, 5). Postpartum breast peri-implant galactocele is rare disease entity as only one case has been reported (6). We report the case of peri-implant galactocele in lactating women after using breast pump.

## CASE REPORT

A 34-year-old, 1 month-postpartum female visited our institution with a complaint of left breast enlargement. She was using breast pump for 1 month. She had both retromammary breast augmentations for 7 years.

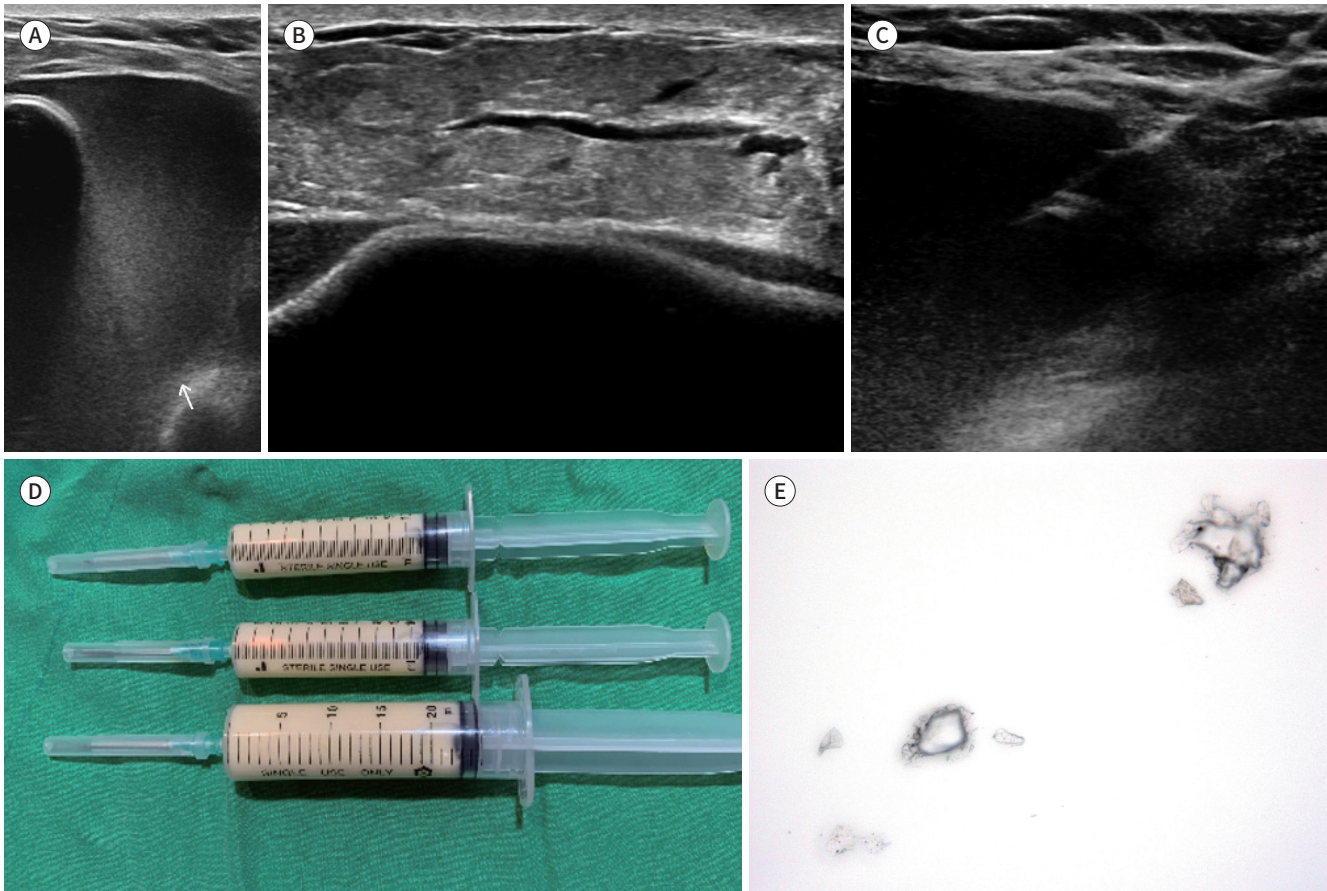
US of left breast revealed large amount of hyperechoic peri-implant fluid collection, more than 8 cm in depth (Fig. 1A). US of both breasts showed hyperechoic fibroglandular tissue proliferation and ductal dilatations which is physiologic pregnancy associated change (Fig. 1B). US of right breast revealed intact implant in the retromammary space, superficial to the pectoralis major muscle. US-guided fine needle aspiration (FNA) was done by 21G-needle and 40 cc of milk component was drained (Fig. 1C, D). In the FNA cytology, there were numerous semitransparent variable sized crystals which is rare but suggestive finding for galactocele (Fig. 1E). The patient did not return to our institution for additional follow-up.

This study was approved by the Institutional Review Board of our institution and the requirement for informed consent was waived (IRB No. 2021-03-002).

## DISCUSSION

Galactocele is the most common benign breast lesion in women who are lactating or recently stopped lactation. Galactocele is a milk-containing retention cyst in the lactiferous duct, originated from ductal obstruction (5, 7). The imaging features of galactocele vary depending on variable amounts of fat, protein, and water contents in the cyst. On US, it manifests as simple or complicated cyst with variable internal echogenicity (5, 8). In this case, galactocele occurred in retromammary, peri-implant area which is unusual location for galactocele. We assumed that negative pressure to the retromammary fat area caused by breast pump, resulted in a dead space and eventually a milk fistula formed between dead space and peri-implant area. If implants were located in the retropectoral area, peri-implant galactocele might not be occurred.

**Fig. 1.** Imaging and pathologic features of peri-implant galactocele in postpartum female.  
**A.** Left breast US reveals hyperechoic peri-implant fluid collection (arrow).  
**B.** Left breast US reveals hyperechoic fibroglandular tissue proliferation and ductal dilatation.  
**C.** US-guided FNA is done using a 21G-needle.  
**D.** Approximately 40 mL of milk component is drained.  
**E.** In FNA cytology (Papanicolaou stain,  $\times 400$ ), numerous semitransparent crystals are observed.  
 FNA = fine needle aspiration



Peri-implant fluid collection is mostly caused by benign causes, such as infection, seroma, spontaneous or traumatic hematoma, implant rupture and idiopathic causes, but can also be caused by malignancies (9). Rare but important differential diagnosis of this case is BIA-ALCL. BIA-ALCL was recently recognized by World Health Organization as a unique T-cell anaplastic lymphoma kinase (ALK)-negative ALCL. It has been reported that BIA-ALCL originated from chronic inflammation or activation of T cells to bacterial biofilm of breast implant (3). It manifests as rapid swelling of breast due to late-onset ( $> 1$  year after implant insertion) periprosthetic effusion (85%) or as a mass (median of 10 years after implant insertion, 15%) (3). BIA-ALCL usually manifests as homogeneous peri-implant effusion with or without inflammatory changes of adjacent breast tissue and irregular capsule contour on US. Cytopathologic analysis including immunophenotyping for CD30, CD2, CD3, CD4, CD5, CD7, CD8, and CD45 markers and ALK receptor expression should be done for diagnosis of BIA-ALCL (3). Positive results on CD30 marker and negative results for ALK receptor are known to be a fundamental diagnostic tool for BIA-ALCL (10). Not only cytologic results but also clinico-

pathologic correlation with clinical information is essential factor for correct diagnosis of BIA-ALCL (3). Our case showed similar radiologic and clinical features to BIA-ALCL which was late-onset (7 years after implant insertion) peri-implant effusion. However, clinical information such as postpartum status with feeding breast and milk component with galactocele-specific crystals on FNA was considered as more suggestive factor for galactocele. As these factors strongly suggested the diagnosis for galactocele whether than other malignant lesions including BIA-ALCL, additional marker analysis including CD30 was not done in our case. According to National Comprehensive Cancer Network guideline for diagnosis of BIA-ALCL, more than 50 mL of fluid should be collected (10). In our case 40 mL of milk component was collected and more fluid was not able to be collected.

We reported the case of peri-implant galactocele in lactating women after using breast pump. Various diseases, especially BIA-ALCL can cause the peri-implant fluid collection in augmented breast. Correlation imaging features with clinical information and cytologic analysis plays an important role in appropriate management.

#### Author Contributions

Conceptualization, L.G.Y., S.G.W., P.Y.M., L.A.; investigation, L.A., L.Y.J., H.J.; supervision, P.Y.M.; visualization, P.H.Y.; writing—original draft, L.G.Y., S.G.W.; and writing—review & editing, L.G.Y., S.G.W.

#### Conflicts of Interest

The authors have no potential conflicts of interest to disclose.

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## 유방확대술 받은 수유 중인 여성에서 유축기를 사용한 뒤 발생한 유방 보형물 관련 역형성 거대 세포 림프종 모방 산후 젖낭종: 증례 보고

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산후에 발생하는 젖낭종은 수유 중인 여성에게서 흔히 나타나는 양성 질환이다. 유선후층 지방층, 유방확대 보형물 주변에 생긴 젖낭종은 비교적 드문 형태이다. 34세의 출산 후 1달이 지난 여성은 2주 전부터 시작된 좌측 유방의 확대를 주소로 내원하였다. 출산 후 지속적으로 유축기를 사용해왔다. 좌측 유방은 초음파상에서 보형물 주변에서 관찰되는 고에코의 액체 성분으로 관찰되었다. 초음파 유도하 세침흡인으로 모유 성상의 액체가 배액되었다. 세포검사 결과에서 젖낭종을 시사하는 결정체들이 관찰되었다. 다양한 원인, 특히 유방 보형물 관련 역형성 거대 세포 림프종으로 인해 보형물 주변에 액체가 관찰될 수 있다. 영상의학적 소견, 임상적 정보 그리고 세포학적인 분석들을 종합하여 적절한 치료에 도움을 받을 수 있을 것으로 사료된다.

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